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Notice of Allowability	Application No.	Applicant(s)	
	10/540,512	OL ET AL.	
	Examiner	Art Unit	
	Fred M. Teskin	1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to AMENDMENT OF JANUARY 19, 2007.
2. ☒ The allowed claim(s) is/are 3,6 and 7.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> 1. <input type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date <u>20061018</u> 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. 7. <input type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____. |
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Reasons for Allowance

The following is an examiner's statement of reasons for allowance:

Claims 3, 6 and 7 are allowable over the closest prior art documents listed in the IDS filed October 18, 2006, viz., CN-1254350-A and WO-98/49212-A1 (which corresponds to CN '350, per item III.d. of the Statement).

As amended, claim 3 calls for copolymerizing at least one olefin selected from ethylene and straight chain α -olefins, vinyl cyclohexane as Vinyl compound (I) and as Polyene (II), a compound having two or more of ethylene bonds and at least one combination of two ethylene bonds in which those are bonded to each other through at least three carbon atoms. The claim further specifies that the contents of monomer units based on the olefin, monomer units based on the vinyl compound (I) and monomer units based on the polyene (II) in the olefin-based copolymer obtained are 2 to 97 mol %, 2 to 97 mol % and 0.0001 to 10 mol % or less based on 100 mol % of the total monomer units of the copolymer, respectively.

WO '212 discloses a process for preparing ethylene/ α -olefin/diene interpolymers. It is stated on page 4 (first full paragraph) that the process may be used to polymerize C_2 (ethylene) together with at least one C_{3-20} α -olefin monomer and a C_{4-40} diene monomer. In the same paragraph a list of preferred ethylencially unsaturated monomers is set forth, which includes vinyl cyclohexane along with at least 13 other specific monomer compounds. The paragraph concludes by stating the most preferred monomers: ethylene, and mixtures of ethylene, at least one of propylene, butene-1,

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hexene-1 and octene-1, and a nonconjugated diene, especially ENB (5-ethylidene-2-norbornene).

In the next paragraph on page 4, illustrative nonconjugated dienes are listed. Included in the list are species of applicants' polyene (II) (1,6-octadiene, its 7-methyl-, 3,7-dimethyl- and 5,7-dimethyl- derivatives, 1,7-octadiene and 1,9-decadiene) along with various other specific dienes that do not qualify by reason of having two ethylene bonds bonded to each other through *fewer* than 3 carbon atoms (e.g., 1,4-hexadiene, 1,5-heptadiene, 5-methyl-1,4-hexadiene, 2-methyl-1,5-hexadiene, 6-methyl-1,5-heptadiene, 1,5-cyclooctadiene, 1,5-cyclododecadiene and norbornadiene, among others). The final full paragraph on page 4 states the diene is preferably a nonconjugated diene selected from ENB, 1,4-hexadiene and norbornadiene. None of these "preferred" dienes meets the definition of applicants' polyene (II) as each contains two ethylene bonds bonded to each other through *fewer* than 3 carbon atoms.

Consistent with the stated preferences, the working examples of WO '212 (e.g., Examples 4-7 and Comparative Example D) are directed to preparation of ethylene/propylene/ENB and ethylene/butene-1/ENB terpolymer compositions.

Based on the above analysis, it is concluded that WO '212 does not spell out a limited class of possible monomer combinations that would have enabled one skilled in the art to immediately envisage copolymerizing the claimed combination of olefin, vinyl cyclohexane and polyene (II). Thus, there is no anticipation.

Further, the teachings of WO '212 would not have provided motivation to select the claimed combination of monomers to produce an olefin-based copolymer having the

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specified contents of corresponding monomer units. Indeed the disclosed specific preferences for diene monomer would have led one to use a nonconjugated diene having less than 3 carbon atoms between the ethylenic bonds to make the interpolymer. In this regard, as demonstrated by the Rule 132 declaration of record, when such a nonconjugated diene was added to ethylene and vinyl cyclohexane in copolymerization (*viz.*, 1,5-hexadiene, excluded from the scope of claimed polyene (II)), the molecular weight (expressed as intrinsic viscosity) of a ternary copolymer obtained is not high compared to the ethylene/vinyl cyclohexane binary copolymer and to ternary copolymers based on ethylene, vinyl cyclohexane and specific species of the claimed polyene (II). The declaration evidence supports the fact that the claimed invention provides a result, which cannot be expected from consideration of the teachings of WO '212.

Accordingly, claims 3, 6 and 7 are deemed to define allowable subject matter and passed to issue.


Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner F. M. Teskin whose telephone number is (571) 272-1116. The examiner can normally be reached on Monday through Thursday from 7:00 AM - 4:30 PM, and can also be reached on alternate Fridays.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The appropriate fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


FRED TESKIN
PRIMARY EXAMINER
0713

FMTeskin/02-02-06